

- 4 -

of diversion from a landfill. The pulped fiber clings to itself creating a very stable carrier when the carrier is shaped and dried.

When the fiber form is introduced to a hydrocarbon fuel source such as liquid oil or liquified grease/waxes, it will absorb more than twice its own weight and suspend the chosen hydrocarbon within the fiber form. Once the form has absorbed the hydrocarbon, it demonstrates the durability of a natural wood log and requires no intervention during handling or combustion. It will remain intact throughout transport, storage and combustion and requires no packaging at any stage.

Throughout the primary burn, the fiber form maintains its shape and only as the hydrocarbon fuel source is depleted, does second stage combustion in which the porous carrier is burned take place. The high energy created by the burning of the hydrocarbon at the surface of the combustible fuel source causes the fiber to become superheated and once surface combustion is completed, the porous carrier will be in the form of a hot coal and effect complete disposition of the combustible portion of the porous carrier.

The combustion of applicant's fuel source is very energy efficient. By way of example, a tiny unit of fuel weighing 35 grams, the size of a medium sized chicken egg, will burn almost smoke free for 40 minutes. The burning unit of fuel will generate enough energy to thoroughly heat 14 ounces of dense food and continue to boil 1 litre of water. While the unit of fuel will generally ignite a fire even under the most adverse conditions, it is not a primary objective of the present invention to provide a fire starter.

When applicant's combustible fuel is warmed to 160 - 200°F, the fuel unit will remain stable and intact and the composition and form are not compromised.

Many of the combustible fuel sources described in the references cited by the Examiner are formed by particulate matter with the hydrocarbon fuel and then forming a fuel source by compression or extrusion techniques. Such fuel sources are different from Applicant's preferred embodiment in that they lack a porous carrier of dried pulped fiber, which would be self supporting on its own by virtue of the interaction between the fibers and therefore does not rely on the hydrocarbon source as a binder. A disadvantage to the compression/extrusion based fuel sources is that they tend to be unstable and, when warmed to a temperature sufficient to cause the binder to liquify, the entire form will begin to crumble and flow.

In Applicant's experience, conventional fuel log products currently available and based on compression/extrusion technology fall far short in performance from Applicant's invention. For example conventional fuel logs are typically packaged in heavy gauge plastic wrap with an instruction to the user not to open the wrap prior to ignition. Such fuel log products generally carry a warning label to the effect that the fuel logs are only approved for use in two specific types of fireplaces and not for use in solid fuel stoves. In addition the warning labels often state that the logs may not be used for cooking and

- 5 -

that a user must not agitate or manipulate the fuel during combustion as it will become explosive in nature.

When Applicant's fuel product is ground and introduced into an actual oil or liquid petroleum based spill, including bunker oil, the individual particles will absorb between 8 and 20 times their weight of the spill (depending upon the source of hydrocarbon fuel employed during manufacturing). Applicant's product quickly incorporates the recovered spill as part of its overall make up and within minutes of the introduction of the fuel particulate to a petroleum spill on water, animals and marine life, including birds, may dive through the petroleum contaminated particulate without becoming saturated with oil. The processed fiber allows the particles to expand to accommodate huge ratios of oil. The only effect on the fuel value is to enhance the energy produced during the burning of the fuel. The fuel particulate will facilitate an in-situ burn on water. Alternatively it is easily recovered from a spill site and removed to a remote location for use as industrial fuel. Once the particulate has absorbed an oil spill, it will hold the recovered spill in a "solid" state for more than 10 months. In situations where storm conditions would not allow recovery at sea, the particulate may be recovered on shore with minimum damage to coastlines.

Applicant will now deal with the Examiner's concerns individually.

Applicant acknowledges Examiner's comments regarding claims 24-26 depending from elected claim 21. These claims have been deleted.

The Examiner objected to the drawings because of a lead line in Figure 4 and a missing reference in Figure 5. Applicant has enclosed an amended page containing Figures 4 and 5 amended to overcome the Examiner's objections.

The Examiner requested an abstract on a consecutively numbered separate sheet which is enclosed herewith.

The Examiner pointed out various informalities in the specification which have been attended to in the above amendment and should be self-explanatory. Applicant thanks the Examiner for the taking the time to thoroughly review the application and point out the oversights represented by the informalities.

The Examiner objected to the intent statement associated with the claims (page 27, line 1) on the basis that "we claim" should be "I claim" as there is only one inventor. The intent statement has been so amended.

The Examiner objected to claim 18 because it does not end with a period. Claim 18 has been amended to end with a period.

The Examiner objected to claim 21 because "sources" should be "source". Claim 21 has been deleted.

- 6 -

The Examiner rejected claims 3, 16-18 and 24-26 as being indefinite. More specifically, the Examiner pointed out that in claim 3, line 1 there was no antecedent basis for "said granular material". "Granular" has been deleted in favour of "non-combustible" for which antecedent basis has been introduced in claim 2.

The Examiner objected to the manner in which Markush groups in claims 3, 17 and 18 were presented. As suggested by the Examiner, "comprising" has been amended to "consisting of".

The Examiner rejected claim 16 because in lines 1 and 2, "an ignition means" had been multiply recited, as "an ignition means" has already been introduced in claim 1 from which claim 16 depends. Claim 1 has been amended to delete, in line 4, "by an ignition means" thereby eliminating the multiple recitation.

The Examiner rejected claims 24-26 as being unclear. These claims have been deleted.

The Examiner rejected claims 1, 2, 4, 6, 7, 11 and 18 as being anticipated by Tanner (US 4,326,854). The Examiner states that Tanner discloses the invention as claimed including a non-combustible carrier such as rock wools. Applicant notes that Tanner discloses a synthetic fuel log manufactured by pre-blending particulate material with a liquid combustible by-product and extruding the mixture. In Applicant's view this would not produce a stable fuel source and Applicant notes that Tanner attempts to stabilize its product through the addition of flame inhibitors to enhance coking. This is discussed for example in column 6 at line 43 which states:

"Some degree of coking is desirable, as it gives predictable burning times for the logs and minimizes the risk of splitting or breaking up of the log upon combustion".

Claim 1 has been amended to specify that the porous carrier is self supporting and of dried pulped fiber which clearly distinguishes Applicant's invention from the Tanner reference. The remaining claims depend from claim 1.

The Examiner rejected claims 1, 3-9, 11 and 20 as being anticipated by Shinholster, Jr. et al. (US 4,369,054). The Examiner states that Shinholster discloses the invention as claimed including a porous carrier, solid fuel and a powdered material. The Examiner further states the Shinholster discloses a log structure comprising pulp made from paper pulp, nylon fibers, or newsprint (long strand wood fibers). The Examiner also states that Shinholster further discloses the use of both short or long fibers.

Shinholster teaches combining slag, fibrous material and a carbonaceous fuel into an admixture which is compressed and dried. (See for example column 6 commencing at line 33). Shinholster suggests using a binder to bind material together either by incorporating a water soluble resin in the pulp or by subsequently impregnating the material with a suitable resin.

- 7 -

Shinholster does not teach a self supporting porous carrier of dried pulped fiber and a solid hydrocarbon fuel dispersed throughout the porous carrier after its formation, as required by amended claim 1. Accordingly, claim 1 as amended is not anticipated by Shinholster.

The Examiner rejected claims 1, 4-6, 11, 12, 14, 15 and 17 as being anticipated by Campana (US 5,290,326). The Examiner states that Campana discloses the invention as claimed including a substantially conical porous carrier which can be made from cotton strands, paper towels, and paper materials impregnated with wax. The Examiner specifically refers to column 4, lines 50-58.

Applicant notes that the cited passage from Campana relates to a wick and not the composition of the ignitor 70. The ignitor 70 is not a dried pulp impregnated with wax or oil but rather, a thermite type of material (i.e. a solid based on aluminum metal and iron oxide) which is not a hydrocarbon fuel. Accordingly Applicant's invention as defined by the amended claims cannot be anticipated by Campana which does not disclose a self supporting porous carrier of dried pulped fiber and a solid hydrocarbon fuel dispersed throughout the porous carrier after its formation.

The Examiner rejected claims 1, 4-6, 11, 14, 17 and 19 as being anticipated by Krei et al. (US 1,767,293). Applicant notes that Krei teaches burlap coated with wax which is subsequently shaped and finally covered with waxed paper. Applicant refers the Examiner to column 2 commencing at line 56 which states that Krei is a fire kindler which, when ignited, causes wax to melt and run off into the fuel being lit which is contrary to Applicant's invention in which combustion takes place without fuel run off and has a self supporting porous carrier of dried pulped fiber and in which the hydrocarbon fuel is dispersed throughout the porous carrier after its formation.

The Examiner rejected claims 1, 4, 6, 7, 11, 17 and 21 as being anticipated by Alexander (US 3,395,003). The Examiner states that Alexander discloses the invention as claimed including the fuel source being an insect repellant.

Applicant notes that Alexander teaches a kindling material and not fuel source for sustained burning. The mat of Alexander is impregnated with an odour producing component which however is not added in quantity sufficient to act as a primary fuel source to sustain combustion in the manner required in Applicant's amended claims but rather, is burned and hence has its odour released by the act of the balance of the kindling being combusted. Alexander teaches a very quick dip in paraffin however this is not intended to disperse paraffin throughout the carrier, but rather acts an exterior coating to preserve the odours of the essential oils contained therein and to seal the materials from the effects of exposure to air. This is set out in column 3 commencing at line 50.

In contrast, Applicant's combustible fuel source has a hydrocarbon fuel dispersed throughout, the hydrocarbon fuel is combusted and combustion is sustained by vaporization of solid hydrocarbon fuel in the porous carrier and travelling through the

- 8 -

porous carrier for surface combustion. Applicant notes that the essential oils in Alexander are diluted approximately 100:1 which would not leave a residue capable of supporting combustion according to the manner claimed in applicant's invention.

The Examiner rejected claims 1 and 22 as being anticipated by Simmons (US4959154). The Examiner states that Simmons discloses a porous carrier (wood chips) and a solid fuel (wax) which can be used to clean up oil spills by absorbing oil from the surface of water and either burning on site or removing for use in a utility.

Applicant notes that the Simmons carrier is not ground from a self supporting porous carrier of dried pulped fiber as required by claim 1 as amended and accordingly Simmons cannot anticipate claim 1 or claim 22, which depends therefrom. Additionally, Simmons states in column 2 commencing at line 45 that the chips contain a protective coating of wax on the surface.

Applicant notes that unlike its product, the Simmons wood chips attract oil to the surface rather than absorbing the oil which would not prevent marine life from becoming oil soaked upon contact with the oil soaked wood chips. Also, the Simmons chips require approximately a 3:1 weight ratio of chips to oil removed which is considerably poorer recovery than Applicant's product.

The Examiner rejected claims 10 and 13 as being obvious in view of Jesse (US 5,342,418) in view of Chen et al. (US 5,037,409). The Examiner states that Jesse discloses the invention substantially, including the use of cellulosic fiber material used in the diaper industry, as claimed except for the express recitation of wood fibers from processing wood pulp fluff as the cellulosic material. The Examiner further states that Chen teaches wood pulp fluff fibers as the cellulosic constituent of diapers. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to use conventional fibers of wood pulp fluff as the cellulosic constituent in the fuel of Jesse because the disclosure of Chen et al.

Applicant notes that Jesse teaches the use of thermoplastic to bond fiber in an extrusion process. This is contrary to Applicant's invention as defined by the amended claims which require self-supporting porous carrier of dried pulped fiber. The manufacturing process is described commencing at line 30 in column 8. Applicant notes that the process is characterized as extrusion in column 10 at line 13.

As pointed out by the Examiner, the Chen reference merely suggests another fiber source. Accordingly, there is nothing in Chen which could be combined with Jesse to substantially alter the teaching of Jesse to abandon the thermoplastic bonded extrudate of Jesse in favour of dispersing a hydrocarbon fuel throughout a self-supporting porous carrier of dried pulped fiber.

The Examiner rejected claim 16 as being unpatentable over Haymond (US 2,107,054) in view of Ferguson (US 4,381,914). The Examiner states that Haymond discloses the invention substantially as claimed with the exception of an ignition means adjacent the

- 9 -

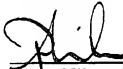
combustion initiating means. The Examiner further points out that Ferguson discloses a candle and teaches the use of match adjacent a wick to aid in igniting the wick. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to provide the fuel unit of Haymond with an ignition means adjacent the combustion initiating means as taught by Ferguson to yield Applicant's invention.

Applicant notes that Haymond teaches the mixing wood shavings and sawdust with paraffin or tallow in a hot and liquid state. The mixture is subsequently turned into a mould to provide either sheets or cylinders. This is in sharp contrast to Applicant's invention as defined by the amended claims which require a self supporting porous carrier of dried pulped fiber.

Applicant notes that the Ferguson reference teaches a common candle with a match adjacent the wick and lacks a porous carrier of dried pulped fiber. Accordingly no combination of Haymond or Ferguson could yield Applicant's invention and therefore Applicant's invention as defined by amended claim 1 and by claim 16 which depends from claim 1 could not be obvious in view of Haymond and Ferguson.

For the reasons set out above, Applicant respectfully submits that the invention as defined by Applicant's amended claims patentably distinguishes over the cited references and accordingly Applicant respectfully seeks allowance of her amended claims.

Respectfully submitted



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